Listing of Claims:

Claims 1-61 (canceled)

Claim 62 (currently amended): A method of measuring the value of an electrical power parameter~~, such as Apparent Power or Power Factor,~~ of an electrical power signal, the method comprising:

calculating a first instantaneous power component as the product of an instantaneous voltage signal of the electrical power signal and an instantaneous current signal of the electrical power signal;

carrying out a relative phase shift between the instantaneous voltage signal and the instantaneous current signal;

calculating a second instantaneous power component as the product of the relatively phase-shifted instantaneous voltage and instantaneous current signals;

RMS averaging each of the first and second power components to determine their respective magnitudes; and

using both of the calculated magnitudes, as determined from the RMS averaging step, to determine the value of the electrical power parameter.

Claim 63 (original): A method according to Claim 62, wherein the step of carrying out a relative phase shift comprises phase shifting the instantaneous voltage of the electrical power signal prior to calculating the second instantaneous power component.

Claim 64 (original): A method according to Claim 62, wherein the step of carrying out a relative phase shift comprises carrying out a relative phase shift of 90 degrees.

Claim 65 (original): A method according to Claim 62, further comprising determining the Apparent Power of the electrical power signal by calculating the square root of the

sum of the squares of the RMS values of the first and second instantaneous power components.

Claim 66 (original): A method according to Claim 62, further comprising measuring the mean value of the first instantaneous power component to determine the Active Power of the electrical power signal.

Claim 67 (original): A method according to Claim 65, further comprising:

measuring the mean value of the first instantaneous power component to determine the Active Power of the electrical power signal; and

calculating the ratio of measured Active Power of the electrical power signal to the measured Apparent Power of the electrical power signal, the value of the ratio being the Power Factor of the electrical power signal.

Claim 68 (original): A method according to Claim 66, further comprising integrating the Active Power value over time to determine the Energy Consumption of the electrical power signal.

Claim 69 (original): A method according to Claim 62, further comprising measuring the mean value of the second instantaneous power component to determine the Reactive Power of the electrical system.

Claim 70 (original): A method according to Claim 62, further comprising filtering at least one of the instantaneous voltage or instantaneous current signals of the electrical power signal, prior to their use in the calculating steps.

Claim 71 (original): A method according to Claim 70, wherein the filtering step results in the fundamental frequency component of at least one of the instantaneous voltage or

instantaneous current signals being obtained.

Claim 72 (original): A method according to Claim 70, wherein the filtering step results in at least one of the harmonic frequency components of at least one of the instantaneous voltage or instantaneous current signals being obtained.

Claim 73 (original): A method according to Claim 70, wherein the filtering step comprises:

filtering the instantaneous voltage signal to obtain its fundamental frequency components; and

using the filtered instantaneous voltage signal and the unfiltered instantaneous current signal to measure a Network Delivered Power Parameter.

Claim 74 (original): A method according to Claim 70, wherein the filtering step comprises:

filtering the instantaneous voltage signal to obtain its fundamental frequency components;

filtering the instantaneous current signal to obtain at least one of its harmonic frequency components; and

using the filtered signals to determine a Current Distortion Power Parameter.

Claim 75 (original): A method according to Claim 70, wherein the filtering step comprises:

filtering the instantaneous voltage signal to obtain at least one of its harmonic frequency components;

filtering the instantaneous current signal to obtain its fundamental frequency components; and

using the filtered signals to determine a Voltage Distortion Power Parameter.

Claim 76 (original): A method according to Claim 70, wherein the filtering step comprises:

filtering the instantaneous voltage signal to obtain at least one of its harmonic frequency components;

filtering the instantaneous current signal to obtain at least one of its harmonic frequency components; and

using the filtered signals to determine a Harmonic Apparent Power Parameter.

Claim 77 (original): A method according to Claim 73, further comprising comparing the Delivered Power Parameter, the Harmonic Apparent Power Parameter, the Voltage Distortion Power Parameter, or the Current Distortion Power Parameter with another power parameter determined by the method to produce a dimensionless figure of merit representative of the waveform distortion produced, in the electrical power signal, by a load to which the electrical power signal is supplied.

Claim 78 (original): A method according to Claim 70, further comprising: providing two or more different types of filtering; and selecting between these different types of filtering to obtain two or more different electrical power parameters.

Claim 79 (original): A method according to Claim 62, wherein:

the electrical power signal is a multiple-phase signal;

the calculating steps comprise: calculating a single first instantaneous power component for each of the multiple phases; summing the single first instantaneous components together; calculating a single second instantaneous power component for each of the multiple phases; and summing the single second instantaneous components together; and

the RMS averaging step comprises: averaging the summed first instantaneous power components and the summed second instantaneous components; and

combining them together to provide the first and second averaged instantaneous power components.

Claim 80 (original): A method according to Claim 79, wherein the electrical power signal comprises an unbalanced multiple-phase signal.

Claim 81 (original): A method according to Claim 79, wherein the electrical power signal comprises a balanced multiple-phase signal.

Claim 82 (original): A method according to Claim 79, further comprising resolving the multiple-phase signal into a phase sequence for use in establishing the effect of a load on an electric power network.

Claim 83 (original): A method according to Claim 82, wherein the phase sequence comprises a positive-phase sequence in order to obtain a measure representative of the power generated at a source of the electrical power signal.

Claim 84 (original): A method according to Claim 82, wherein the phase sequence comprises negative and zero-phase sequences in order to obtain a measure representative of the power converted in the load.

Claim 85 (original): A method according to Claim 83, wherein the phase sequence comprises negative and zero-phase sequences in order to obtain a measure representative of the power converted in the load and the positive, the negative and the zero-phase sequences are used to obtain a measure representative of the power used by the load.

Claim 86 (original): A method according to Claim 82, wherein the resolving step is

operatively selectable by a user.

Claim 87 (original): A method according to Claim 62, further comprising converting the instantaneous current signal of the electrical power signal into a proportional voltage representation signal for use in the calculating and averaging steps.

Claim 88 (original): A method according to Claim 62, further comprising converting the instantaneous voltage and instantaneous current signals of the electrical power signal into frequency spectra, and wherein the calculating and averaging steps are implemented in the frequency domain with equivalent frequency spectra processing steps.

Claims 89-103 (canceled)

Claim 104 (currently amended): A method of measuring an electrical power parameter ~~such as Apparent Power or Power Factor,~~ of an electrical power signal, the method comprising:

filtering at least one of an instantaneous voltage signal or an instantaneous current signal of the electrical power signal;

using the filtered instantaneous voltage or current signal in:

calculating first and second instantaneous power components as the respective products of non phase-shifted/phase-shifted, instantaneous voltage and instantaneous current signals;

RMS averaging each of the first and second instantaneous power components to determine their respective magnitudes; and

using the calculated magnitudes <u>determined from the RMS averaging step,</u> to determine the value of the electrical power parameter.

Claim 105 (original): A method according to Claim 104, wherein the filtering step results in the fundamental frequency component of at least one of the instantaneous voltage or instantaneous current signals being obtained.

Claim 106 (original): A method according to Claim 104, wherein the filtering step results in at least one of the harmonic frequency components of at least one of the instantaneous voltage or instantaneous current signals being obtained.

Claim 107 (original): A method according to Claim 104, wherein the filtering step comprises:

filtering the instantaneous voltage signal to obtain its fundamental frequency components; and

using the filtered instantaneous voltage signal and the unfiltered instantaneous current signal to measure a Delivered Power Parameter frequency spectrum.

Claim 108 (original): A method according to Claim 104, wherein the filtering step comprises:

filtering the instantaneous voltage signal to obtain its fundamental frequency components;

filtering the instantaneous current signal to obtain at least one of its harmonic frequency components; and

using the filtered signals to determine a Current Distortion Power Parameter.

Claim 109 (original): A method according to Claim 104, wherein the filtering step comprises:

filtering the instantaneous voltage signal to obtain at least one of its harmonic frequency components;

filtering the instantaneous current signal to obtain its fundamental frequency

components; and

using the filtered signals to determine a Voltage Distortion Power Parameter.

Claim 110 (original): A method according to Claim 104, wherein the filtering step comprises:

filtering the instantaneous voltage signal to obtain at least one of its harmonic frequency components;

filtering the instantaneous current signal to obtain at least one of its harmonic frequency components; and

using the filtered signals to determine a Harmonic Apparent Power Parameter.

Claim 111 (original): A method according to Claim 107, further comprising comparing one of the group comprising: the Delivered Power Parameter, the Harmonic Apparent Power Parameter, the Voltage Distortion Power Parameter, ~~or~~ and the Current Distortion Power Parameter, with another power parameter determined by the method to produce a dimensionless figure of merit representative of the waveform distortion produced, in the electrical power signal, by a load to which the electrical power signal is supplied.

Claim 112 (original): A method according to Claim 104, further comprising: providing two or more different types of filtering; and selecting between these different types of filtering to obtain two or more different electrical power parameters.

Claim 113 (currently amended): A method of measuring a power quantity ~~such as Apparent Power or Power Factor,~~ of a multiple-phase electrical power signal, the method comprising:

resolving the multiple-phase signal into a phase sequence for use in establishing the effect on the electrical power signal of a load to which the electrical power signal is

supplied;

using the phase sequence in:

calculating first and second instantaneous power components as the respective products of non phase-shifted/phase-shifted, instantaneous voltage and instantaneous current signals; and

RMS averaging each of the first and second power components to determine their respective magnitudes; and

using the calculated magnitudes determined from the RMS averaging step, to determine the value of the electrical power parameter.

Claim 114 (original): A method according to Claim 113, wherein the phase sequence comprises a positive phase sequence in order to obtain a measure representative of the power generated at a source of the electrical power signal.

Claim 115 (original): A method according to Claim 113, wherein the phase sequence comprises negative and zero phase sequences in order to obtain a measure representative of the power generated in the load.

Claim 116 (original): A method according to Claim 114, wherein the phase sequence comprises negative and zero phase sequences in order to obtain a measure representative of the power generated in the load and the positive, the negative and the zero-phase sequences are used to obtain a measure representative of the power used by the load.

Claim 117 (original): A method according to Claim 113, wherein the resolving step is operatively selectable by a user.

Claim 118 (original): A method according to Claim 113, wherein the electrical power

signal comprises an unbalanced multiple-phase power signal.

Claim 119 (original): A method according to Claim 62, further comprising sampling the instantaneous voltage and instantaneous current signals to obtain a digital representation thereof and using the digital representations in the subsequent processing steps.

Claim 120 (original): A method according to Claim 62, wherein the electrical power signal comprises a non-sinusoidal waveform signal.

Claim 121 (currently amended): A power meter for measuring the value of an electrical power parameter ~~such as Apparent Power or Power Factor,~~ of an electrical power signal, the meter being arranged to implement a method according to Claim 62.

Claim 122 (canceled)

Claim 123 (currently amended): An electrical power meter for measuring the value of an electrical power parameter~~, such as Apparent Power or Power Factor,~~ of an electrical power signal, the meter comprising:

means for calculating a first instantaneous power component as the product of an instantaneous voltage signal of the electrical power signal and an instantaneous current signal of the electrical power signal;

means for implementing a relative phase shift between the instantaneous voltage signal and the instantaneous current signal;

means for calculating a second instantaneous power component as the product of the relatively phase-shifted instantaneous voltage and instantaneous current signals;

means for RMS averaging each of the first and second power components to determine their respective magnitudes; and

means for using the calculated magnitudes determined by the RMS averaging means to determine the value of the electrical power parameter.

Claim 124 (original): A power meter according to Claim 123, wherein the phase shifting means shifts the instantaneous voltage signal of the electrical power signal by 90 degrees prior to the calculating means calculating the second instantaneous power component.

Claim 125 (original): A power meter according to Claim 123, further comprising a step-down voltage means for stepping down the instantaneous voltage signal of the electrical power signal to a level suitable for measurement by the meter.

Claim 126 (original): A power meter according to Claim 123, further comprising a conversion means for converting the instantaneous current signal of the electrical power signal to a representative voltage.

Claim 127 (original): A power meter according to Claim 123, the meter being arranged to calculate several different power parameters and further comprising means for selectively displaying information regarding the values of the calculated power parameters.

Claim 128 (original): A power meter according to Claim 123, further comprising means for sampling the instantaneous voltage and instantaneous current signals to obtain a digital representation thereof and means for using the digital representations in the subsequent processing steps.